SEQUENCE LISTING

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<120> CNRE Binding Factors and Uses Thereof

<130> B0801/7197/ERG/KA

<140> US 09/673994
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<151> 1998-04-24

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                         Met Ser Leu Trp Leu Glu Ala Ser Met
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cct gat gtt tct cct gat tct gca acg gag ttg tgg aag aca gaa cct       159
Pro Asp Val Ser Pro Asp Ser Ala Thr Glu Leu Trp Lys Thr Glu Pro
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caa gat gca gga gac cag gga ggc aac act tgc atc ctc agg gag gaa       207
Gln Asp Ala Gly Asp Gln Gly Gly Asn Thr Cys Ile Leu Arg Glu Glu
                 30                  35                  40
gcc agg atg ccc cag tca act ggg gtt gct tta ggg ata ggg ttg gag       255
Ala Arg Met Pro Gln Ser Thr Gly Val Ala Leu Gly Ile Gly Leu Glu
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tca gca gag cct aca gcc ctg ctc ccc agg gca gag acc ctc cca gag       303
Ser Ala Glu Pro Thr Ala Leu Leu Pro Arg Ala Glu Thr Leu Pro Glu
         60                  65                  70
ccg aca gag ctt cgt cca caa aag cgg aaa aag ggc cca gcc ccc aaa       351
Pro Thr Glu Leu Arg Pro Gln Lys Arg Lys Lys Gly Pro Ala Pro Lys
     75                  80                  85
atg ctg ggg aac gag ctg tgc agt gtc tgt ggg gac aaa gcc tct ggc       399
Met Leu Gly Asn Glu Leu Cys Ser Val Cys Gly Asp Lys Ala Ser Gly
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Phe His Tyr Asn Val Leu Ser Cys Glu Gly Cys Lys Gly Phe Phe Arg
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cgc agt gtc atc aag gga gca cgc tat gtc tgc cac agc ggt ggc cac        495
Arg Ser Val Ile Lys Gly Ala Arg Tyr Val Cys His Ser Gly Gly His
            125             130                 135

tgc ccc atg gac acc tac atg cgg cgg aaa tgc cag gag tgt cga ctt        543
Cys Pro Met Asp Thr Tyr Met Arg Arg Lys Cys Gln Glu Cys Arg Leu
        140             145                 150

cgc aaa tgc cgc cag gca ggc atg agg gag gag tgt gtg ctg tca gaa        591
Arg Lys Cys Arg Gln Ala Gly Met Arg Glu Glu Cys Val Leu Ser Glu
    155             160                 165

gaa cag atc cgc ttg aag aaa ctg aag cgg caa gaa gag gaa cag gct        639
Glu Gln Ile Arg Leu Lys Lys Leu Lys Arg Gln Glu Glu Glu Gln Ala
170             175                 180                 185

caa gcc act tcg gtg tcc cca agg gtg tcc tca cct cct caa gtc ctg        687
Gln Ala Thr Ser Val Ser Pro Arg Val Ser Ser Pro Pro Gln Val Leu
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cca cag ctc agc cca gag cag ctg ggc atg atc gag aag ctg gtg gct        735
Pro Gln Leu Ser Pro Glu Gln Leu Gly Met Ile Glu Lys Leu Val Ala
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gcc cag caa cag tgt aac agg cgc tcc ttt tca gac cgc ctg cgc gtc        783
Ala Gln Gln Gln Cys Asn Arg Arg Ser Phe Ser Asp Arg Leu Arg Val
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acg cct tgg ccc att gca ccc gac cct cag agc cgg gaa gcc cga caa        831
Thr Pro Trp Pro Ile Ala Pro Asp Pro Gln Ser Arg Glu Ala Arg Gln
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cag cgc ttt gcc cac ttt act gag ctg gcc atc gtg tcc gtg cag gag        879
Gln Arg Phe Ala His Phe Thr Glu Leu Ala Ile Val Ser Val Gln Glu
250             255                 260                 265

att gtt gac ttt gcc aaa cag ctc cct ggc ttc cta cag ctc agc agg        927
Ile Val Asp Phe Ala Lys Gln Leu Pro Gly Phe Leu Gln Leu Ser Arg
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gag gac cag atc gcc ttg ctg aag acc tct gca att gag gtc atg ctt        975
Glu Asp Gln Ile Ala Leu Leu Lys Thr Ser Ala Ile Glu Val Met Leu
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ctg gag acg tca cgg agg tac aac ccc ggc agt gag agc atc acc ttc       1023
Leu Glu Thr Ser Arg Arg Tyr Asn Pro Gly Ser Glu Ser Ile Thr Phe
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ctc aag gac ttc agt tac aac cgg gaa gac ttt gcc aaa gca ggg ctg       1071
Leu Lys Asp Phe Ser Tyr Asn Arg Glu Asp Phe Ala Lys Ala Gly Leu
                315                 320                 325

cag gtg gag ttc atc aac ccc atc ttt gag ttc tcc aga gcc atg aat       1119
Gln Val Glu Phe Ile Asn Pro Ile Phe Glu Phe Ser Arg Ala Met Asn
330                 335                 340                 345

gag ctg caa ctc aat gat gct gag ttt gct ctg ctc att gcc atc agc       1167
Glu Leu Gln Leu Asn Asp Ala Glu Phe Ala Leu Leu Ile Ala Ile Ser
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atc ttc tct gca gac cgg ccc aac gtg cag gac cag ctc caa gta gag       1215
Ile Phe Ser Ala Asp Arg Pro Asn Val Gln Asp Gln Leu Gln Val Glu
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agg ctg caa cac aca tat gtg gag gcc ctg cac gcc tac gtc tcc atc       1263
Arg Leu Gln His Thr Tyr Val Glu Ala Leu His Ala Tyr Val Ser Ile
                380                 385                 390

aac cac ccc cac gac cca ctg atg ttc cca cgg atg cta atg aag ctg       1311
Asn His Pro His Asp Pro Leu Met Phe Pro Arg Met Leu Met Lys Leu
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gtg agc ctc cgt act ttg agc agc gtc cat tca gag caa gtg ttt gcc         1359
Val Ser Leu Arg Thr Leu Ser Ser Val His Ser Glu Gln Val Phe Ala
410                    415                    420                    425
ctt cgc ctg cag gac aaa aag ctt ccc cct ctg ctg tct gag atc tgg         1407
Leu Arg Leu Gln Asp Lys Lys Leu Pro Pro Leu Leu Ser Glu Ile Trp
                       430                    435                    440
gat gtc cac gag tgactgtttc gccgtgtcct ttgtgttggc cacatggcga            1459
Asp Val His Glu
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aggctcactg actgcttccc acgggtggag cagactgaga agggcagaca ttcctgggag      1519
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tggctgctgg gcagttggga tctactaacg ttgtatacca tctgaagacc ttgttgaccc      1639
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Gly Asn Thr Cys Ile Leu Arg Glu Glu Ala Arg Met Pro Gln Ser Thr
           35                  40                  45
Gly Val Ala Leu Gly Ile Gly Leu Glu Ser Ala Glu Pro Thr Ala Leu
    ·50                  55                  60
Leu Pro Arg Ala Glu Thr Leu Pro Glu Pro Thr Glu Leu Arg Pro Gln
65                  70                  75                  80
Lys Arg Lys Lys Gly Pro Ala Pro Lys Met Leu Gly Asn Glu Leu Cys
                85                  90                  95
Ser Val Cys Gly Asp Lys Ala Ser Gly Phe His Tyr Asn Val Leu Ser
            100                 105                 110
Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Ile Lys Gly Ala
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Arg Tyr Val Cys His Ser Gly Gly His Cys Pro Met Asp Thr Tyr Met
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Arg Arg Lys Cys Gln Glu Cys Arg Leu Arg Lys Cys Arg Gln Ala Gly
145                 150                 155                 160
Met Arg Glu Glu Cys Val Leu Ser Glu Glu Gln Ile Arg Leu Lys Lys
                165                 170                 175
Leu Lys Arg Gln Glu Glu Glu Gln Ala Gln Ala Thr Ser Val Ser Pro
            180                 185                 190
Arg Val Ser Ser Pro Pro Gln Val Leu Pro Gln Leu Ser Pro Glu Gln
            195                 200                 205
Leu Gly Met Ile Glu Lys Leu Val Ala Ala Gln Gln Gln Cys Asn Arg
    210                 215                 220
Arg Ser Phe Ser Asp Arg Leu Arg Val Thr Pro Trp Pro Ile Ala Pro
225                 230                 235                 240
Asp Pro Gln Ser Arg Glu Ala Arg Gln Gln Arg Phe Ala His Phe Thr
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Glu Leu Ala Ile Val Ser Val Gln Glu Ile Val Asp Phe Ala Lys Gln
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Asn Pro Gly Ser Glu Ser Ile Thr Phe Leu Lys Asp Phe Ser Tyr Asn
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Arg Glu Asp Phe Ala Lys Ala Gly Leu Gln Val Glu Phe Ile Asn Pro
            325             330             335
Ile Phe Glu Phe Ser Arg Ala Met Asn Glu Leu Gln Leu Asn Asp Ala
        340             345             350
Glu Phe Ala Leu Leu Ile Ala Ile Ser Ile Phe Ser Ala Asp Arg Pro
        355             360             365
Asn Val Gln Asp Gln Leu Gln Val Glu Arg Leu Gln His Thr Tyr Val
        370             375             380
Glu Ala Leu His Ala Tyr Val Ser Ile Asn His Pro His Asp Pro Leu
385             390             395             400
Met Phe Pro Arg Met Leu Met Lys Leu Val Ser Leu Arg Thr Leu Ser
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Ser Val His Ser Glu Gln Val Phe Ala Leu Arg Leu Gln Asp Lys Lys
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tgtggaactg gatccgaacc actgccagag ctactgttcc cttggacctg ccggggctgt   2820
ggacaggaac tggaggaggg tgagggcagc aggctgggag ctgccatgtg tgggcgctgc   2880
atgcgaggag aggctggagg ggttgccact gggggacccc agggccctgg tgacaaaggc   2940
tttgcctgta gtttatgccc ctttgccact cactacccca accacctggc tcggcacatg   3000
aagactcaca gtggtgagaa acccttccgc tgtgcccgct gtccatacgc ctctgctcat   3060
ctggataacc tgaaacggca ccagcgcgtc cacacaggag aaaagcccta caagtgcccc   3120
ctctgtccgt atgcctgtgg caacctggcc aacctcaagc gtcatggtcg catccactct   3180
ggtgacaaac ctttcggtg tagcctttgc aactacagct gcaaccagag tatgaacctc   3240
aaacgtcata tgctgcgaca cacgggcgag aagcccttcc gctgtgccac ctgcgcctat   3300
accacaggcc actgggacaa ctacaagcgt catcagaagg tgcatggcca tggtggagca   3360
ggagggcctg gtctctctgc ccctgagggc tgggccccac ctcatagccc accctctgtt   3420
ttgagcactc ggggtccagc agccctgggt gctactggta gcagggctct tcattcagac   3480
tcaccttgaa ctaactaggt tcttttacct ggggctctag gaattagccc tatgcctcct   3540
gcattttata caaatgaact agaaaccacc tttccctttc tccccgctg tcaggggct    3600
ccacacagac taacctaggc actatatgga ccagcctgaa tcccatggtc aggggccat    3660
atagaccagg ggacttgtct tagctcacgt accagatgag ctaagtgatt agggccttgg   3720
attcaccgcc actgctccca gaggctatgg atgaactggt tgggagctgc ccagcctttt   3780
actgttttaa cttatttcag tgctttataa taaaggaaac actaacagaa aaaaaaaaa    3840
aaaaaaa                                                            3847
```

```
        <210> 8
        <211> 763
        <212> PRT
        <213> Mus musculus

        <400> 8
Met Glu Gly Ala Gly Tyr His Leu Pro Gly Trp Leu Val Gly Leu Arg
1               5                   10                  15
Val Gln Leu Leu Ile Gly Trp Leu Ala Ala His His Asn His Phe Leu
            20                  25                  30
Val Met Leu Arg Leu Arg Ser Gly Cys Thr Ala His Glu Leu Arg Ile
        35                  40                  45
Pro Cys Cys Ser Ala Val Ala Glu Ala Glu Ala Gly Thr Glu Val Pro
    50                  55                  60
```

Ala Gly Leu Arg Arg Gly Val Gly Gly Ser Met Asn Gly Ser Gly Gly
65   70   75   80
Gly Gly Gly Ser Asp Leu Ser Trp Ile Pro Gly Pro Gly Gln Gly Leu
              85   90   95
Pro Arg Ala Arg Thr Val Tyr Gly Gly Gly Ser Trp Ile Leu Arg Ala
          100   105   110
Arg Thr Asp Gly Arg Ala Glu Leu Gly Gly Ala Gly Pro Gly Gly Leu
          115   120   125
Gly Pro Glu Ala Arg Arg Ala Gly Ala Gly His Asp Ala Pro Lys Glu
    130   135   140
Ala Lys Pro Ser Thr Ala Arg Glu Met Arg Gly Gly Gln Arg Ser Gly
145   150   155   160
Val Arg Gly Leu Glu Pro Gly Gly Thr Gly Val Gly Ser Val Glu Trp
              165   170   175
Ala Gln Val Arg Val Glu Gly Asp Ser Ser Gly Leu Gly Ala Asp Asp
          180   185   190
Leu Gly Ser Ser Leu Leu Thr Arg Val Leu Lys Glu Pro Glu Gly His
          195   200   205
Arg Val Arg Glu Val Gln Phe Thr Thr Ala Gly Ser Leu Val Arg Ile
    210   215   220
Met Gly Thr Ala Trp Glu Gly Asp Ser Thr Ser Thr Leu Pro Ser Leu
225   230   235   240
Val Asp Thr Glu Asp Ser Phe Asp Glu Gly Pro Gly Ala Leu Val Leu
          245   250   255
Glu Ser Asp Leu Leu Leu Gly Gln Asp Leu Glu Phe Glu Glu Glu Glu
          260   265   270
Glu Glu Asp Glu Gly Asp Gly His Asn Asp Gln Leu Met Gly Phe Glu
          275   280   285
Arg Asp Ser Glu Gly Asp Ser Gln Gly Ala Arg Pro Gly Leu Pro Tyr
    290   295   300
Gly Leu Ser Asp Asp Glu Ser Gly Gly Gly Arg Ala Leu Ser Ala Glu
305   310   315   320
Ser Glu Val Glu Glu Pro Ala Arg Gly Pro Gly Glu Ala Arg Gly Glu
          325   330   335
Arg Pro Gly Pro Ala Cys Gln Leu Cys Gly Gly Pro Thr Gly Glu Gly
          340   345   350
Pro Cys Cys Gly Ala Gly Gly Arg Gly Gly Gly Pro Pro Leu Pro Pro
          355   360   365
Arg Leu Leu Tyr Ser Cys Arg Leu Cys Ala Phe Val Ser His Tyr Ser
    370   375   380
Ser His Leu Lys Arg His Met Gln Thr His Ser Gly Glu Lys Pro Phe
385   390   395   400
Arg Cys Gly Arg Cys Pro Tyr Xaa Ser Ala Gln Phe Val Asn Leu Thr
              405   410   415
Arg His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Pro His
          420   425   430
Cys Pro Phe Ala Cys Ser Ser Leu Gly Asn Leu Arg Arg His Gln Arg
          435   440   445
Thr His Thr Gly Pro Pro Thr Pro Pro Cys Pro Thr Cys Gly Phe Arg
    450   455   460
Cys Cys Ala Pro Arg Pro Thr Arg Pro Pro Ser Pro Thr Glu Gln Glu
465   470   475   480
Gly Thr Met Pro Arg Arg Ser Glu Asn Ala Leu Ile Leu Pro Asp Leu
          485   490   495
Ser Leu His Val Pro Pro Gly Gly Ala Ser Phe Leu Pro Asp Cys Gly
              500   505   510

```
Gln Leu Arg Gly Glu Gly Glu Ser Leu Cys Gly Thr Gly Ser Glu Pro
        515             520             525
Leu Pro Glu Leu Leu Phe Pro Trp Thr Cys Arg Gly Cys Gly Gln Glu
        530             535             540
Leu Glu Glu Gly Glu Gly Ser Arg Leu Gly Ala Ala Met Cys Gly Arg
545             550             555             560
Cys Met Arg Gly Glu Ala Gly Gly Val Ala Thr Gly Gly Pro Gln Gly
            565             570             575
Pro Gly Asp Lys Gly Phe Ala Cys Ser Leu Cys Pro Phe Ala Thr His
            580             585             590
Tyr Pro Asn His Leu Ala Arg His Met Lys Thr His Ser Gly Glu Lys
        595             600             605
Pro Phe Arg Cys Ala Arg Cys Pro Tyr Ala Ser Ala His Leu Asp Asn
        610             615             620
Leu Lys Arg His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys
625             630             635             640
Pro Leu Cys Pro Tyr Ala Cys Gly Asn Leu Ala Asn Leu Lys Arg His
            645             650             655
Gly Arg Ile His Ser Gly Asp Lys Pro Phe Arg Cys Ser Leu Cys Asn
            660             665             670
Tyr Ser Cys Asn Gln Ser Met Asn Leu Lys Arg His Met Leu Arg His
        675             680             685
Thr Gly Glu Lys Pro Phe Arg Cys Ala Thr Cys Ala Tyr Thr Thr Gly
        690             695             700
His Trp Asp Asn Tyr Lys Arg His Gln Lys Val His Gly His Gly Gly
705             710             715             720
Ala Gly Gly Pro Gly Leu Ser Ala Pro Glu Gly Trp Ala Pro Pro His
            725             730             735
Ser Pro Pro Ser Val Leu Ser Thr Arg Gly Pro Ala Ala Leu Gly Ala
            740             745             750
Thr Gly Ser Arg Ala Leu His Ser Asp Ser Pro
            755             760
```

```
<210> 9
<211> 2289
<212> DNA
<213> Mus musculus

<400> 9
atggagggggg cagggtacca ccttcctggt tggctggttg ggttacgcgt ccagcttctg     60
attggttggc tagcagcgca tcacaatcac ttcctggtca tgctgcgact cgctccggt     120
tgtacagccc atgaactacg catcccgtgt tgctctgcgg tggcggaagc ggaagcgggt    180
acggaggtac cagctggtct tcggagggg gtaggggct ccatgaatgg aagcggcggc     240
ggcggcggga cgacctgag ctggattccg gggccggggc aggggctgcc cagggcccgc     300
accgtgtatg ggggcggttc gtggatccta agagcaagga ccgacggcag ggccgaactg     360
ggaggggcgg ggccggggagg cctcgggccg gaggcgcgtc gggctggagc cggtcacgat     420
gccccgaagg aagcaaagcc atccacagcc cgtgaaatgc gagggggtca aaggtcaggg     480
gtcaggggcc ttgagccggg aggaacaggg gtggggtcag tagagtgggc tcaggtcagg     540
gtggagggg actcctcagg gttaggggcg gatgatctgg gatcttcgct ccttaccaga     600
gtattaaagg aacctgaggg tcatcgagta cgggaagtgc agttcacaac agctggctcc     660
ttggttcgga ttatgggtac tgcttgggag ggagattcca caagcaccct cccctctta     720
gtggatactg aagattcctt cgacgaaggt cctggggccc tggtgttgga gagcgatttg     780
ctactaggcc aagatctgga gtttgaagag gaagaggaag aggatgaagg tgacggccac     840
aacgaccagc tcatgggctt tgagagagac tctgaaggag actctcaggg ggccagacct     900
ggacttccct atgggctgag tgacgacgag tctggggggcg ccgcgcact aagtgcggag     960
agtgaagttg aggaaccagc cagggggtcca ggggaggcca gggggtgagag gccaggccca    1020
```

```
gcctgtcagc tgtgtggggg gccgacaggt gaggggccgt gttgtggggc aggagggcgg    1080
ggtggggggc ccccgctgcc cccacggtta ctgtactcat gccggctgtg cgctttcgtg    1140
tcccactact cgagccacct gaagcggcac atgcagacac acagcgggga gaagccgttc    1200
cgctgtggcc gctgcccata cgcntcagcc cagttcgtca acctgacgcg acatacccgc    1260
acccatactg gcgagaagcc ctaccgttgt ccccactgcc cctttgcctg cagcagcctg    1320
ggcaacctga ggcggcatca gcgcacccac acagggcctc ccactcctcc ctgcccaacc    1380
tgtggctttc gatgctgtgc tccacgacca acccggcctc ccagtcccac agagcaggag    1440
gggacaatgc cccgacgatc agaaaatgcg ctgatcctgc cagacttgag tcttcatgtg    1500
ccaccaggtg gtgccagttt cctgccagac tgtgggcagc tgcggggtga aggggagagc    1560
ttgtgtggaa ctggatccga accactgcca gagctactgt tcccttggac ctgccggggc    1620
tgtggacagg aactggagga gggtgagggc agcaggctgg gagctgccat gtgtgggcgc    1680
tgcatgcgag gagaggctgg aggggttgcc actgggggac cccagggccc tggtgacaaa    1740
ggctttgcct gtagtttatg ccccttttgcc actcactacc ccaaccacct ggctcggcac    1800
atgaagactc acagtggtga gaaacccttc cgctgtgccc gctgtccata cgcctctgct    1860
catctggata acctgaaacg gcaccagcgc gtccacacag agaaaagcc ctacaagtgc    1920
cccctctgtc cgtatgcctg tggcaacctg gccaacctca agcgtcatgg tcgcatccac    1980
tctggtgaca aaccttttcg gtgtagcctt tgcaactaca gctgcaacca gagtatgaac    2040
ctcaaacgtc atatgctgcg acacacgggc gagaagccct tccgctgtgc cacctgcgcc    2100
tataccacag gccactggga caactacaag cgtcatcaga aggtgcatgg ccatggtgga    2160
gcaggagggc ctggtctctc tgcccctgag ggctgggccc cacctcatag cccaccctct    2220
gttttgagca ctcggggtcc agcagccctg ggtgctactg gtagcagggc tcttcattca    2280
gactcacct                                                           2289
```

```
        <210> 10
        <211> 509
        <212> DNA
        <213> Mus musculus

        <400> 10
ctgatcctgc cagacttgag tcttcatgtg ccaccaggtg gtgccagttt cctgccagac     60
tgtgggcagc tgcggggtga aggggagagc ttgtgtggaa ctggatccga accactgcca    120
gagctactgt tcccttggac ctgccggggc tgtggacagg aactggagga gggtgagggc    180
agcaggctgg gagctgccat gtgtgggcgc tgcatgcgag gagaggctgg aggggttgcc    240
actgggggac cccagggccc tggtgacaaa ggctttgctg tagtttatgc ccctttgcca    300
ctcactaccc caaccacctg gctcggcaca tgaagactca cagtggtgag aaacccttcc    360
gctgtgcccg ctgtccatac gcctctgctc atctggataa cctgaaacgg caccagcgcg    420
tccacacagg agaaaagccc tacaagtgcc ccctctgtcc gtatgcctgt ggcaacctgg    480
ccaacctcaa gcgtcatggt cgcatccac                                      509
```

```
        <210> 11
        <211> 500
        <212> DNA
        <213> Mus musculus

        <400> 11
cctaccgctg tccccactgc cctttgcct gcagcagcct gggcaacctg aggcggcatc     60
agcgcaccca cacagggcct cccactcctc cctgcccaac ctgtggcttt cgatgctgtg    120
ctccacgacc aacccggcct cccagtccca cagagcagga ggggacaatg ccccgacgat    180
cagaagatgc gctgatcctg ccagacttga gtcttcatgt gccaccaggt ggtgccagtt    240
tcctgccaga ctgtgggcag ctgcggggtg aaggggagag cttgtgtgga actggatccg    300
aaccactgcc agagctactg ttcccttgga cctgccgggg ctgtggacag gaactggagg    360
agggtgaggg cagcaggctg ggagctgcca tgtgtgggcg ctgcatgcga ggagaggctg    420
gaggggttgc cactggggga cccagggccc tggtgacaaa ggctttgcct gtagtttatg    480
ccccttttgcc actcactacc                                               500
```

```
        <210> 12
```

```
<211> 487
<212> DNA
<213> Mus musculus

<400> 12
accagagtat gaacctcaaa cgtcatatgc tgcgacacac gggcgagaag ccttccgctg      60
tgccacctgc gcctatacca caggccactg ggacaactac aagcgtcatc agaaggtgca     120
tggccatggt ggagcaggag ggcctggtct ctctgcccct gagggctggg cccagcctca     180
tagcccaccc tctgtttttga gcactcgggg tccagcagcc ctgggtgcta ctggtagcag     240
ggctcttcat tcagactcac cttgaactaa ctaggttctt ttacctgggg ctctaggaat     300
tagccctatg cctcctgcat tttatacaaa tgaactagaa accacctttc cctttctccc     360
ccgctggtca ggggctccac acagactaac ctaggcacta tatggaccag cctgaatccc     420
atggtcaggg ggccatatag accaggggac ttgtcttagc tcacgtacca gatgagctaa     480
gtgatta                                                               487


<210> 13
<211> 446
<212> DNA
<213> Mus musculus

<400> 13
gtgttagtgt ttcctttatt ataaagcact gaaataagtt aaaacagtaa aaggctgggc      60
agctcccaac cagttcatcc atagcctctg ggagcagtgg cggtgaatcc aaggccctaa     120
tcacttagct catctggtac gtgagctaag acaagtcccc tggtctatat ggcccccctga     180
ccatgggatt caggctggtc catatagtgc ctaggttagt ctgtgtggag ccccctgacca     240
gcggggggaga aagggaaagg tggtttctag ttcatttgta taaaatgcag gaggcatagg     300
gctaattcct agagccccag gtaaaagaac ctagttagtt caaggtgagt ctgaatgaag     360
agccctgcta ccagtagcac ccagggctgc tggaccccga gtgctcaaaa cagagggtgg     420
gctatgaggt ggggccagc cttcag                                          446


<210> 14
<211> 441
<212> DNA
<213> Mus musculus

<400> 14
agcagccagg aggttgtaga ctttattcaa tcaaagatca gtcaacgtga tgaaaacggg      60
gagcttcggt tattgtcatc cattgtggaa gagctgctgg atcagtgcct ggcgccagac     120
acttctgggg atggtacagg gtgtgacaac atgacgtgca tcatcatttg cttcaagccc     180
cgaaacacag tagagcttca ggcagagagt ggcaagagga aactggagga ggcactgtcc     240
acggaggggg ctgaagacac cggcaacagt gacaaaaaga aggccaagag ggactagtgg     300
tcaaccggac cctgcccatg tggactgttt tctgagccct tggacccgag actgagtttt     360
gtccttgtcc tttagcctta gcagtgggta tgaggtgtgc aggggggctgg gtggctttcc     420
tcagcccatt acaaagaggg c                                              441


<210> 15
<211> 581
<212> DNA
<213> Mus musculus

<400> 15
ggcctttagt ctgaaaaagt gttgcttgaa agtgtacaac agagagcggg tgcaagcggc      60
tagggggtcac agagccgcca ataaaaaaga atgtccttaa ataaagtgtt cacagagtaa     120
aaatcagaac taccagtcct tccctccaac acaacagagc acaggcacag aaccgatagt     180
cgatgagccc aaggagagta aggaggctta agaggacagc agagcctccc aggctgccgc     240
gtggggggggg tgggggggccc tctttgtaat gggctgagga aagccaccca gcccctgca     300
```

```
cacctcatac ccactgctaa ggctaaagga caaggacaaa actcagtctc gggtccaagg    360
gctcagaaaa cagtccacat gggcagggtc cggttgacca ctagtccctc ttggccttct    420
ttttgtcact gttgccggtg tcttcagccc cctccgtgga cagtgcctcc tccagtttcc    480
tcttgccant ctctgcctga agctctactg tgtttcgggg cttgaagcaa atgatgatgc    540
acgtcatgtt gtcacaccct gtaccatccc cagaagtgtc t                        581
```

```
        <210> 16
        <211> 586
        <212> DNA
        <213> Mus musculus


        <400> 16
gcttttgtttt ggcctttagt ctgaaaaagt gttgcttgaa agtgtacaac agagagcggg     60
tgcaagcggc taggggtcac agagccgcca ataaaaaaga atgtccttaa ataaagtgtt    120
cacagagtaa aaatcagaac taccagtcct tccctccaac acaacagagc acaggcacag    180
aaccgatagt cgatgagccc aaggagagta aggaggctta agaggacagc agagcctccc    240
aggctgccgc gtggggggggg tggggggccc tctttgtaat gggctgagga aagccaccca    300
gcccctgca cacctcatac ccactgctaa ggctaaagga caaggacaaa actcagtctc     360
gggtccaagg ggctcagaaa aacagttcca catggggcag ggtccggttg aaccactagt    420
tccctcttgg gccttctttt tgttcactgt tggccggtgt cttcagcccc ctccgtggac    480
agtgcctcct ccagtttcct cttgccactc ttctgnctga agtctactgt gtttcggggn    540
tgaagcaaat gatgatgcac ttcatgttgt cacaccctg taccat                    586
```

```
        <210> 17
        <211> 2336
        <212> DNA
        <213> Mus musculus


        <400> 17
atggagggggg cagggtacca ccttcctggt tggctggttg ggttacgcgt ccagcttctg     60
attggttggc tagcagcgca tcacaatcac ttcctggtca tgctgcgact gcgctccggt    120
tgtacagccc atgaactacg catcccgtgt tgctctgcgg tggcggaagc ggaagcgggt    180
acggaggtac cagctggtct tcggagggggg gtaggggggct ccatgaatgg aagcggcggc    240
ggcggcggga gcgacctgag ctgggctccg gggccggggc caggggctgc ccagggcccg    300
caccgtgtat ggggggcggtt cgtggatcct aagagcaagg accgacggca gggccgaact    360
gggagggggcg gggccgggag gcctcgggcc ggaggcgcgt cgggctggag ccggtcacga    420
tgccccgaag gaagcaaagc catccacagc ccgtgaaatg cgagggggtc aaaggtcagg    480
ggtcaggggc cttgagccgg gaggaacagg ggtggggtca gtagagtggg ctcaggtcag    540
ggtggagggg gactcctgag ggttaggggc ggatgatctg ggatcttcgc tccttaccag    600
agtattaaag gaacctgagg gtcatcgagt acgggaagtg cagttcacaa cagctggctc    660
cttggttcgg attatgggta ctgcttggga gggagattcc acaagcaccc tccctctctt    720
agtggatact gaagattcct tcgacgaagg tcctgggggcc ctggtgttgg agagcgattt    780
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caacgaccag ctcatgggct ttgagagaga ctctgaagga gactctcagg gggccagacc    900
tggacttccc tatgggctga gtgacgacga gtctggggggc ggccgcgcac taagtgcgga    960
gagtgaagtt gaggaaccag ccaggggtcc aggggaggcc aggggtgaga ggccaggccc   1020
agcctgtcag ctgtgtgggg ggccgacagg tgaggggccg tgttgtgggg caggagggcg   1080
gggtgggggg cccccgctgc ccccacggtt actgtactca tgccggctgt gcgctttcgt   1140
gtcccactac tcgagccacc tgaagcggca catgcagaca cacagcgggg agaagccgtt   1200
ccgctgtggc cgctgcccat acgcctcagc ccagctcgtc aacctgacgc gacatacccg   1260
cacccatact ggcgagaagc cctaccgctg tcccccactgc ccctttgcct gcagcagcct   1320
gggcaacctg aggcggcatc agcgcaccca cacagggcct cccactcctc cctgcccaac   1380
ctgtggcttt cgatgctgtg ctccacgacc aacccggcct cccagtccca cagagcagga   1440
ggggacaatg ccccgacgat cagaagatgc gctgatcctg ccagacatga agactcacag   1500
tggtgagaaa cccttccgct gtgcccgctg tccatacgcc tctgctcatc tggataacct   1560
gaaacggcac cagcgcgtcc acacaggaga aaagccctac aagtgccccc tctgtccgta   1620
```

```
tgcctgtggc aacctggcca acctcaagcg tcatggtcgc atccactctg gtgacaaacc    1680
ttttcggtgt agcctttgca actacagctg caaccagagt atgaacctca aacgtcatat    1740
gctgcgacac acgggcgaga agcccttccg ctgtgccacc tgcgcctata ccacaggcca    1800
ctgggacaac tacaagcgtc atcagaaggt gcatggccat ggtggagcag gagggcctgg    1860
tctctctgcc cctgagggct gggccccacc tcatagccca ccctctgttt tgagcactcg    1920
gggtccagca gccctgggtg ctactggtag cagggctctt cattcagact caccttgaac    1980
taactaggtt cttttacctg gggctctagg aattagccct atgcctcctg catttttatac    2040
aaatgaacta gaaaccacct ttcccttttct cccccgctgg tcaggggctc cacacagact    2100
aacctaggca ctatatggac cagcctgaat cccatggtca gggggccata tagaccaggg    2160
gacttgtctt agctcacgta ccagatgagc taagtgatta gggccttgga ttcaccgcca    2220
ctgctcccag aggctatgga tgaactggtt gggagctgcc cagccttta ctgttttaac    2280
ttatttcagt gctttataat aaaggaaaca ctaacagaaa aaaaaaaaa aaaaa          2336
```

```
        <210> 18
        <211> 434
        <212> PRT
        <213> Mus musculus

        <400> 18
Met Gly Thr Ala Trp Glu Gly Asp Ser Thr Ser Thr Leu Pro Ser Leu
1               5                   10                  15
Val Asp Thr Glu Asp Ser Phe Asp Glu Gly Pro Gly Ala Leu Val Leu
            20                  25                  30
Glu Ser Asp Leu Leu Leu Gly Gln Asp Leu Glu Phe Glu Glu Glu Glu
        35                  40                  45
Glu Glu Asp Glu Gly Asp Gly His Asn Asp Gln Leu Met Gly Phe Glu
    50                  55                  60
Arg Asp Ser Glu Gly Asp Ser Gln Gly Ala Arg Pro Gly Leu Pro Tyr
65                  70                  75                  80
Gly Leu Ser Asp Asp Glu Ser Gly Gly Gly Arg Ala Leu Ser Ala Glu
                85                  90                  95
Ser Glu Val Glu Glu Pro Ala Arg Gly Pro Gly Glu Ala Arg Gly Glu
            100                 105                 110
Arg Pro Gly Pro Ala Cys Gln Leu Cys Gly Gly Pro Thr Gly Glu Gly
        115                 120                 125
Pro Cys Cys Gly Ala Gly Gly Arg Gly Gly Gly Pro Pro Leu Pro Pro
    130                 135                 140
Arg Leu Leu Tyr Ser Cys Arg Leu Cys Ala Phe Val Ser His Tyr Ser
145                 150                 155                 160
Ser His Leu Lys Arg His Met Gln Thr His Ser Gly Glu Lys Pro Phe
                165                 170                 175
Arg Cys Gly Arg Cys Pro Tyr Ala Ser Ala Gln Leu Val Asn Leu Thr
            180                 185                 190
Arg His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Pro His
        195                 200                 205
Cys Pro Phe Ala Cys Ser Ser Leu Gly Asn Leu Arg Arg His Gln Arg
    210                 215                 220
Thr His Thr Gly Pro Pro Thr Pro Pro Cys Pro Thr Cys Gly Phe Arg
225                 230                 235                 240
Cys Cys Ala Pro Arg Pro Thr Arg Pro Pro Ser Pro Thr Glu Gln Glu
                245                 250                 255
Gly Thr Met Pro Arg Arg Ser Glu Asp Ala Leu Ile Leu Pro Asp Met
            260                 265                 270
Lys Thr His Ser Gly Glu Lys Pro Phe Arg Cys Ala Arg Cys Pro Tyr
        275                 280                 285
Ala Ser Ala His Leu Asp Asn Leu Lys Arg His Gln Arg Val His Thr
```

```
          290                    295                    300
Gly Glu Lys Pro Tyr Lys Cys Pro Leu Cys Pro Tyr Ala Cys Gly Asn
305                    310                    315                    320
Leu Ala Asn Leu Lys Arg His Gly Arg Ile His Ser Gly Asp Lys Pro
                       325                    330                    335
Phe Arg Cys Ser Leu Cys Asn Tyr Ser Cys Asn Gln Ser Met Asn Leu
                340                    345                    350
Lys Arg His Met Leu Arg His Thr Gly Glu Lys Pro Phe Arg Cys Ala
          355                    360                    365
Thr Cys Ala Tyr Thr Thr Gly His Trp Asp Asn Tyr Lys Arg His Gln
     370                    375                    380
Lys Val His Gly His Gly Gly Ala Gly Gly Pro Gly Leu Ser Ala Pro
385                    390                    395                    400
Glu Gly Trp Ala Pro Pro His Ser Pro Pro Ser Val Leu Ser Thr Arg
                405                    410                    415
Gly Pro Ala Ala Leu Gly Ala Thr Gly Ser Arg Ala Leu His Ser Asp
                420                    425                    430
Ser Pro
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          <211> 2651
          <212> DNA
          <213> Mus musculus

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tgtacagccc atgaactacg catcccgtgt tgctctgcgg tggcggaagc ggaagcgggt     180
acggaggtac cagctggtct tcggagggggg gtagggggct ccatgaatgg aagcggcggc     240
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caccgtgtat gggggcggtt cgtggatcct aagagcaagg accgacggca gggccgaact     360
gggaggggcg gggccgggag gcctcgggcc ggaggcgcgt cgggctggag ccggtcacga     420
tgccccgaag gaagcaaagc catccacagc ccgtgaaatg cgaggggggtc aaaggtcagg     480
ggtcaggggc cttgagccgg aggaacagg ggtggggtca gtagagtggg ctcaggtcag     540
ggtggagggg gactcctgag ggttaggggc ggatgatctg ggatcttcgc tccttaccag     600
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gctactaggc caagatctgg agtttgaaga ggaagaggaa gaggatgaag gtgacggcca     840
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gggtggggg cccccgctgc ccccacggtt actgtactca tgccggctgt cgctttcgt    1140
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ccgctgtggc cgctgcccat cgcctcagc ccagctcgtc aacctgacgc gacatacccg    1260
cacccatact ggcgagaagc cctaccgctg tccccactgc cccttttgcct gcagcagcct    1320
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ctgtggcttt cgatgctgtg ctccacgacc aacccggcct cccagtccca cagagcagga    1440
ggggacaatg ccccgacgat cagaagatgc gctgatcctg ccagacttga tcttcatgt    1500
gccaccaggt ggtgccagtt tcctgccaga ctgtgggcag ctgcgggtg aaggggagag    1560
cttgtgtgga actggatccg aaccactgcc agagctactg ttcccttgga cctgccgggg    1620
ctgtggacag gaactggagg agggtgaggg cagcaggctg ggagctgcca tgtgtgggcg    1680
ctgcatgcga ggagaggctg gaggggttgc cactggggga ccccagggcc ctggtgacaa    1740
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catgaagact cacagtggtg agaaaccctt ccgctgtgcc cgctgtccat acgcctctgc    1860
tcatctggat aacctgaaac ggcaccagcg cgtccacaca ggagaaaagc cctacaagtg    1920
cccctctgt ccgtatgcct gtggcaacct ggccaacctc aagcgtcatg gtcgcatcca     1980
ctctggtgac aaacctttc ggtgtagcct ttgcaactac agctgcaacc agagtatgaa     2040
cctcaaacgt catatgctgc gacacacggg cgagaagccc ttccgctgtg ccacctgcgc    2100
ctataccaca ggccactggg acaactacaa gcgtcatcag aaggtgcatg ccatggtgg     2160
agcaggaggg cctggtctct ctgccctga gggctgggcc ccacctcata gcccaccctc     2220
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<211> 539
<212> PRT
<213> Mus musculus

<400> 20

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            20                  25                  30
Glu Ser Asp Leu Leu Leu Gly Gln Asp Leu Glu Phe Glu Glu Glu Glu
        35                  40                  45
Glu Glu Asp Glu Gly Asp Gly His Asn Asp Gln Leu Met Gly Phe Glu
    50                  55                  60
Arg Asp Ser Glu Gly Asp Ser Gln Gly Ala Arg Pro Gly Leu Pro Tyr
65                  70                  75                  80
Gly Leu Ser Asp Asp Glu Ser Gly Gly Gly Arg Ala Leu Ser Ala Glu
                85                  90                  95
Ser Glu Val Glu Glu Pro Ala Arg Gly Pro Gly Glu Ala Arg Gly Glu
            100                 105                 110
Arg Pro Gly Pro Ala Cys Gln Leu Cys Gly Gly Pro Thr Gly Glu Gly
        115                 120                 125
Pro Cys Cys Gly Ala Gly Gly Arg Gly Gly Gly Pro Pro Leu Pro Pro
    130                 135                 140
Arg Leu Leu Tyr Ser Cys Arg Leu Cys Ala Phe Val Ser His Tyr Ser
145                 150                 155                 160
Ser His Leu Lys Arg His Met Gln Thr His Ser Gly Glu Lys Pro Phe
                165                 170                 175
Arg Cys Gly Arg Cys Pro Tyr Ala Ser Ala Gln Leu Val Asn Leu Thr
            180                 185                 190
Arg His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Pro His
        195                 200                 205
Cys Pro Phe Ala Cys Ser Ser Leu Gly Asn Leu Arg Arg His Gln Arg
    210                 215                 220
Thr His Thr Gly Pro Pro Thr Pro Pro Cys Pro Thr Cys Gly Phe Arg
225                 230                 235                 240
Cys Cys Ala Pro Arg Pro Thr Arg Pro Pro Ser Pro Thr Glu Gln Glu
                245                 250                 255
Gly Thr Met Pro Arg Arg Ser Glu Asp Ala Leu Ile Leu Pro Asp Leu
            260                 265                 270
```

```
Ser Leu His Val Pro Pro Gly Gly Ala Ser Phe Leu Pro Asp Cys Gly
        275             280             285
Gln Leu Arg Gly Glu Gly Glu Ser Leu Cys Gly Thr Gly Ser Glu Pro
        290             295             300
Leu Pro Glu Leu Leu Phe Pro Trp Thr Cys Arg Gly Cys Gly Gln Glu
305             310             315             320
Leu Glu Glu Gly Glu Gly Ser Arg Leu Gly Ala Ala Met Cys Gly Arg
            325             330             335
Cys Met Arg Gly Glu Ala Gly Gly Val Ala Thr Gly Gly Pro Gln Gly
        340             345             350
Pro Gly Asp Lys Gly Phe Ala Cys Ser Leu Cys Pro Phe Ala Thr His
        355             360             365
Tyr Pro Asn His Leu Ala Arg His Met Lys Thr His Ser Gly Glu Lys
        370             375             380
Pro Phe Arg Cys Ala Arg Cys Pro Tyr Ala Ser Ala His Leu Asp Asn
385             390             395             400
Leu Lys Arg His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys
            405             410             415
Pro Leu Cys Pro Tyr Ala Cys Gly Asn Leu Ala Asn Leu Lys Arg His
        420             425             430
Gly Arg Ile His Ser Gly Asp Lys Pro Phe Arg Cys Ser Leu Cys Asn
        435             440             445
Tyr Ser Cys Asn Gln Ser Met Asn Leu Lys Arg His Met Leu Arg His
        450             455             460
Thr Gly Glu Lys Pro Phe Arg Cys Ala Thr Cys Ala Tyr Thr Thr Gly
465             470             475             480
His Trp Asp Asn Tyr Lys Arg His Gln Lys Val His Gly His Gly Gly
            485             490             495
Ala Gly Gly Pro Gly Leu Ser Ala Pro Glu Gly Trp Ala Pro Pro His
        500             505             510
Ser Pro Pro Ser Val Leu Ser Thr Arg Gly Pro Ala Ala Leu Gly Ala
        515             520             525
Thr Gly Ser Arg Ala Leu His Ser Asp Ser Pro
530             535
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        <212> DNA
        <213> Mus musculus

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        <210> 22
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        <212> DNA
        <213> Rattus norvegicus

        <400> 22
acctagcttg gcctcacggg ctaggattta                                    30

        <210> 23
        <211> 28
        <212> DNA
        <213> Homo sapiens
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<400> 23
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